Arizona Hospital Discharge Data Submission to CDC NEPHT Network Fellowship

Environmental Public Health Tracking
ASTHO Fellowship - Phase I Report

Submitted by
Matthew Roach, MPH
Climate & Health Program Manager
Office of Environmental Health
Bureau of Epidemiology & Disease Control
Arizona Department of Health Services
150 N. 18th Avenue, Suite 140
Phoenix, Arizona 85007

I. Introduction/Background

Project Description

ADHS submitted a proposal for an ASTHO/CDC EPHT fellowship to build ADHS' capacity to collect, format, and submit hospital discharge data to the National Tracking Network. ADHS was accepted to the Fellowship. The proposal described how Arizona would learn to properly format inpatient admissions and emergency department visits for several Nationally Consistent Data and Measures (NCDMs). The proposal described a work plan on how we would build capacity for sharing data to the National Tracking Network and how we propose to sustain submission of hospital discharge data for current and future NCDMs. The proposed project was written to submit inpatient admission data for carbon monoxide poisoning, asthma, heat stress, and myocardial infarction for the years 2005-2012. The project also covered submitting emergency department data for carbon monoxide poisoning, asthma, and heat stress visits for the years 2005-2012.

The Office of Environmental Health (OEH) within the Arizona Department of Health Services (ADHS) participated in this Fellowship in order to build capacity to respond to and adapt to environmental hazards. Communities from across the state have reached out to ADHS for help in understanding how the environment impacts their health.

ADHS is not a funded grantee for CDC's National Environmental Public Health Tracking (NEPHT) Program. In 2011, ADHS participated in ASTHO's Tracking Fellowship Program and was mentored by California, a funded EPHT state. The ADHS project specifically dealt with heat illness. The project helped fill a data gap in recent heat-related hospital inpatient admissions and emergency department visits. A summary of our achievements is listed below.

2011 ASTHO's EPHT Peer-to-Peer Fellowship Program: The Program participated in a peer-to-peer fellowship program to enhance capacity in non-EPHT grantee states attempting to conduct EPHT-related activities.[1] Through this fellowship, ADHS gained one-on-one mentorship from an EPHT state grantee (California). Staff visited a host site to learn best practices and lessons learned, including key tracking techniques and IT infrastructure that can be modeled around the needs and environmental challenges for the state. The Program become part of the national tracking conversation and propelled the Program into building a peer network across state agencies. As fellowship alumni, OEH disseminated lessons learned through a webinar facilitated by ASTHO.

Benefits/Significance to Arizona and Tracking Network

Our submission of hospital discharge data to the Tracking Network will help public health officials, university researchers, and Arizona communities to be able to explore environmental impacts on health and to be able to answer community concerns about the impact of the environment on human health. The project creates an opportunity for the state to provide a more complete picture of environmental health outcomes within Arizona and between other states. The project advances current knowledge and capacity to conduct environmental public health tracking related activities. In addition, we hoped that by demonstrating that ADHS had capacity to submit hospital discharge data that it would make our application for the EPHT cooperative agreement funding opportunity announcement stronger.

II. Methods/Lessons Learned

When the Fellowship opportunity was announced, the ADHS' Climate & Health Program within the Office of Environmental Health took the lead on implementing the project for the Arizona Department of Health Services. The program already had experience in performing surveillance on heat morbidity and mortality, but had no experience working with EPHT Nationally Consistent Data and Measures (NCDMs). Before pursuing the project, the Project lead had to secure buy-in from agency upper management and owners of the hospital discharge data to ensure this work aligned with the strategic plan of the agency. After a discussion between the Arizona project lead and data steward/hospital discharge data owner on feasibility of the project, the years 2005-2012 were suggested for use in this Fellowship. The project team evaluated feasibility based on length of project period, staffing, and quality of data. All the required parties within the agency to pursue the project signed off on the plan and a proposal was submitted to ASTHO.

This new fellowship project involved sharing emergency department and inpatient admission data and thus required additional steps to ensure the protection of HIPAA protected data from the agency. The project lead had to partner with the hospital discharge data (HDD) data manager to identify the proper rules and regulations regarding release of Arizona's hospital discharge data to the National Tracking Portal. The project lead shared information on sample data use agreements developed by other EPHT grantees and indicator data dictionaries with the data steward of the HDD. After several email correspondences and teleconferences, an agreement was set regarding data protection methods. The methods described in the National Environmental Public Health Tracking Network Data Re-release Plan, Version 2.5, June 20, 2008 was accepted as a means to protect the data. After this was resolved, CDC's Environmental Public Health Tracking Branch signed off on a data use agreement for use of Arizona's hospital discharge data. The agreement pertained to both the inpatient and emergency department data for the time period of 2005-2012.

One of the first tasks for the Fellowship involved the development of a Memorandum of Understanding (MOU) between the Arizona Department of Health Services and the Association of State & Territorial Health Officials. An MOU was signed between the parties to perform the duties listed in the Fellowship once terms and conditions were agreed upon by both parties. The agreement between the parties was facilitated by email correspondence and signatures by agency designated business officials reviewing and signing off on the Fellowship.

In addition, through collaboration with ASTHO and CDC, Fellows were given access to several CDC secure access websites, reference documents, and tools; including the NEPHT SharePoint site and the NEPHT- Secure Access Management System Portal. ASTHO and CDC uploaded useful documents for Fellows including; sample DUA's, data submission training webinars, indicators, measures, methods, SAS code, and MOU samples.

Throughout the fellowship, Arizona's project lead and data steward participated on several monthly check-in calls with CDC, ASTHO, and other Fellows. These meetings helped to provide Fellows with needed guidance to move their project forward. Arizona was able to learn what guidance and tools were available on the SharePoint site.

The Project lead already had access to the hospital discharge database for public health surveillance purposes. The hospital discharge database in Arizona contains information on emergency department visits and inpatient admissions for Arizona Department of Health Services licensed hospitals. In order to format the data, the project lead had to review the guidance documents, tools, and SAS code provided on the EPHT SharePoint site. Specifically useful were the How-to-Guides and Indicator Templates provided for each indicator. These documents provided the necessary information on what cases to include and exclude in datasets created. Also helpful were the Emergency Department NCDM Tool (ED-NCDM) version 1.0 User Guide, Inpatient NCDM Tool (IP-NCDM) Version 3.0 User Guide and related SAS programs which help to create an XML file that meets the specifications for EPHT hospitalization de-identified data schema. These files were instrumental in the development and formatting of Arizona's heat stress, carbon monoxide poisoning, asthma, and myocardial infarction data. SAS 9.3 was used to analyze the data for the Fellowship.

In order to create metadata, the project lead reviewed a series of Metadata Training videos on the CDC SharePoint site. A total of 56 metadata files were needed for the amount of data being submitted for the Fellowship. One file was created for each year and type of data (ex. 2005 heat stress emergency department visits). The CDC's Metadata Creation Tool was used to create each of the 56 metadata files. The metadata files followed EPHTN Tracking Network Profile Version 1.2 and had information on identification, data quality, entity and attribute, distribution, and metadata references. Each metadata file was created within CDC's Secure Access Management System and was validated within the Metadata Creation Tool before being submitted.

III. Conclusion

In summary, Phase 1 of the project had many successes. An MOU for the project was signed by both parties, a data use agreement was created, inpatient admission/emergency department visit data was acquired and formatted, and metadata was created and submitted. In order to get many of these steps to succeed; collaboration between our data steward, agency business officials, ASTHO, and CDC was needed. Documentation, training videos, webinars, and teleconferences helped the project lead learn the required steps to share Arizona's data with the Tracking Network.

Some of the challenges for the project included finding time to complete the work when competing projects took priority over the fellowship. In addition, after reviewing the requirements of EPHT Metadata, the project lead learned that information on security protocols and data sharing would need to be addressed. Through collaboration with the data steward and review of metadata files written by grantees, the project lead was able to address the issue. Without this input, completing the necessary fields would have been more difficult to achieve.

Recommendations

For states interested in pursuing this process, I would recommend the following:
- Identify if this project is feasible with your hospital discharge data steward before pursuing.
- Review EPHT NCDMs from the beginning.
- Review EPHT metadata files published on the NEPHT website by grantees from the beginning.
- Review Metadata Training Videos developed by CDC and use the CDC's Metadata Creation Tool for submission of Metadata to the Tracking Network.
- Identify if you need a data use agreement from the beginning for your submission of data.

IV. References/Supporting materials
1. http://www.astho.org/Programs/Environmental-Health/Tracking-Environmental-Health-Hazards/EPHT-State-to-State-Peer-Fellowship-Program/Fellow-Projects-and-Final-Reports/